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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/125,128	08/11/1998	YUICHIRO IGUCHI	1084-98	7453
35811 7590 01/04/2008 IP GROUP OF DLA PIPER US LLP ONE LIBERTY PLACE 1650 MARKET ST, SUITE 4900 PHILADELPHIA, PA 19103			EXAMINER LIN, JAMES	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 01/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/125,128	Applicant(s) IGUCHI ET AL.	
	Examiner Jimmy Lin	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 158-160 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 158-160 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/29/2007 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 158 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites "*a phosphor paste...contained in a paste applicator above the substrate for red, green, or blue* such that the phosphor paste continuously flows downwardly from all of the holes *for each color* of the phosphor paste" (emphasis added by Examiner). The claim is inconsistent because the claim requires "a phosphor paste", suggesting a single color, while requiring phosphor paste "for each color", suggesting multiple colors. It is unclear if the claim requires only a phosphor for a single color or phosphors of more than one color. For the purpose of this examination, the claim will be interpreted to be at least inclusive of both.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 158-160 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (JP 63-155527) in view of Kanagu et al. (U.S. Patent No. 5,846,110), Iguchi et al. (JP 08-162019, as provided by Applicant), and Yoshiba et al. (U.S. Patent No. 5,776,545). Schermerhorn (U.S. Patent No. 5,723,945) is used as a teaching reference.

Nanto teaches a method of spraying a phosphor between barrier ribs of a gas discharge panel (abstract; Fig. 3). The phosphor is sprayed through nozzles. The nozzles are interpreted to be the claimed outlet hole.

Nanto does not explicitly teach that the applicator has 640 to 2000 outlet holes. However, Nanto does teach that multiple nozzles may simultaneously spray the three primary colors, or may be arranged so as to spray the same color with equivalent spacing (partial translation by the USPTO of the '527 Japanese document, pg. 2, right-hand column, 5th paragraph; see also Fig. 2). Nanto recognizes the use of multiple nozzles for the application of a single color or all three primary colors (i.e., red, green and blue). Additionally, Nanto reasonably teaches that the phosphor of one color can be applied to all the spaces to be coated with that color in a one time relative movement of the nozzle and the substrate (Figs. 2-3).

Kanagu teaches that a typical plasma display substrate can have 640 pixels, wherein each pixel comprises of three subpixels, for a total of 1920 subpixels (Table 2 in col. 6). The pixels can be formed into columns (Fig. 3). Each of the three subpixels represents one of the colors of red, green, and blue (see, e.g., Schermerhorn, col. 3, lines 56-58). In the case of Kanagu, there are 640 red columns, 640 green columns, and 640 blue columns. Because Kanagu teaches that such plasma display configurations were operable in the art, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the plasma display of Nanto with 1920 columns, with 640 columns for each of the three colors of red, green, and blue with a reasonable expectation of success. Additionally, because Nanto reasonably teaches the deposition of a single color into all of the spaces in a single-pass method, one of ordinary skill in the art would have used an applicator having at least 640 nozzles.

Nanto does not explicitly teach that the gas discharge panel is a plasma display or that the ejected phosphor contains a phosphor powder and an organic compound. However, Iguchi teaches that it was well known to have applied a phosphor paste via a nozzle between barrier ribs of a plasma display (abstract; Figs. 1B-1C). The phosphor paste comprises of a phosphor

powder and an organic binder [0018]-[0020]. The phosphor layer is then heated [0027]. Because Iguchi teaches that it was well known to have deposited phosphor paste through a nozzle to manufacture a plasma display, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the method of Nanto to have formed a phosphor layer for a plasma display. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a phosphor powder and an organic binder as the particular phosphor paste of Nanto and to have heated the phosphor layer with a reasonable expectation of success because Iguchi teaches that such methods were known in the art of phosphor deposition. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Nanto and Iguchi do not explicitly teach that the average diameter of the outlet holes is 10 to 500 μm . However, Iguchi does teach that plasma cell pitch can be 120 μm [0035]. One of ordinary skill would have recognized that using a nozzle diameter greater than the cell pitch would have applied the phosphor to an adjacent cell, thereby contaminating the color of the adjacent cell. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a nozzle diameter of less than 120 μm in the method of making a plasma display of Nanto and Iguchi with a reasonable expectation of success. One would have been motivated to do so in order to have prevented contamination of adjacent cells. Overlapping ranges are *prima facie* evidence of obviousness (see MPEP 2144.05.I.).

Nanto does not explicitly teach that the continuous flow of phosphor paste is accomplished via a continuous application of a pressure. However, Yoshiba teaches that it was well known in the art of spraying to have applied pressure to eject a solution from a nozzle (col. 3, lines 28-32; col. 3, line 64-col. 4, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have continuously discharged the phosphor paste of Nanto and Iguchi by applying a continuous pressure with a reasonable expectation of success because Yoshiba teaches that such a method of spraying was operable in the art. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Claim 159: Nanto teaches that the paste applicator can be designed to discharge all three colors of red, blue, and green simultaneously (col. 8, lines 12-14). The combination of Nanto in view of Kanagu would have reasonably suggested the use of a paste applicator having at least 1920 nozzles (i.e., 640 nozzles per color) in order to perform a single-pass deposition as taught in Nanto. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a paste applicator having 1920 nozzles that can discharge the colors of red, green, and blue simultaneously.

Response to Arguments

6. Applicant's arguments filed 10/29/2007 have been fully considered but they are not persuasive.

The Applicant argues on pg. 4-5 that claims 158-160 are commensurate in scope with the unexpected results. However, the claims are rejected under 35 U.S.C. 103(a) because the prior art reasonably suggests the deposition of all of the spaces for a single color to be coated in a single pass and that a plasma display panel having 1920 pixels (i.e., 640 red pixels, 640 green pixels, and 640 blue pixels) was operable in the art. Additionally, the prior art reasonably teaches the deposition of all three colors at the same time. See rejection above for details.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER